NAME: DATE:

Mastery Assessment of Unit 2 (Practice version 115)

Question 1

Let f represent a function. If $f[44] = 28$, then there exists a knowable solution to the equation below.

$$y = \frac{f[21x - 19]}{7} + 14$$

Find the solution.

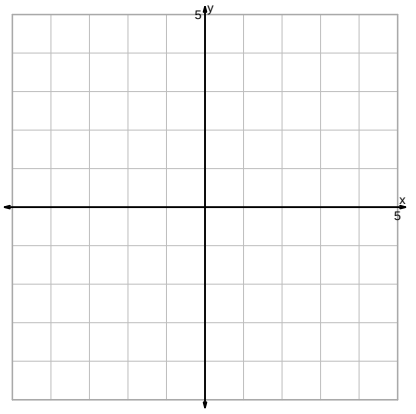
$x =$

$y =$

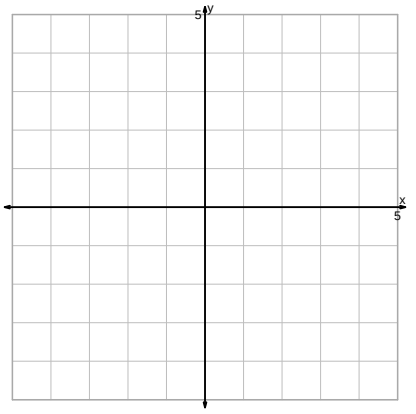
Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

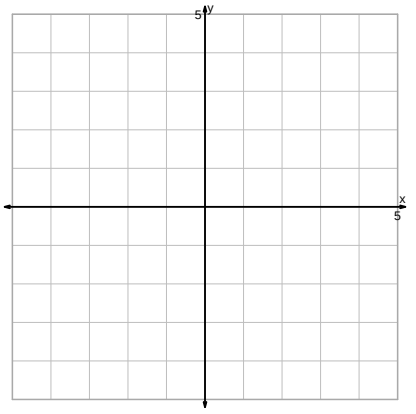
$y = (x+2)^3$



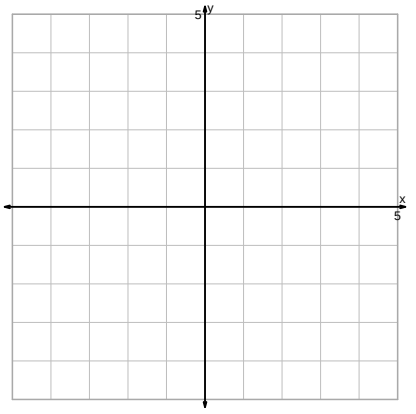
$y = 2 \cdot \log_2(x)$



$y = 2^{x-2}$

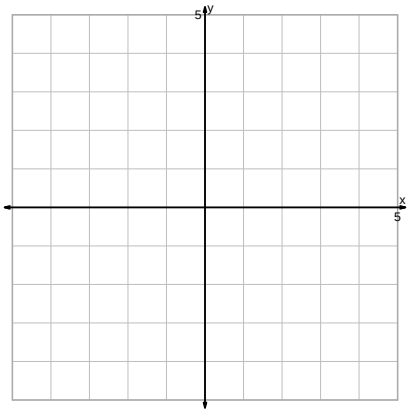


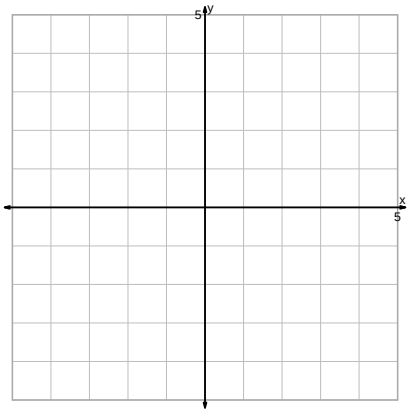
$y = \log_2(-x)$



Question 2 continued...

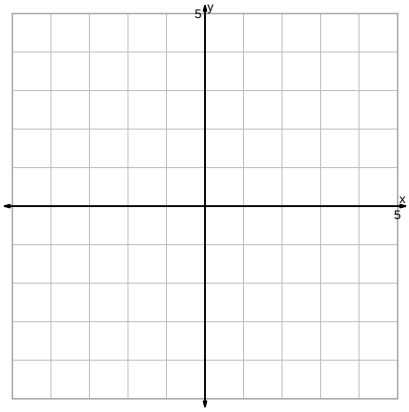
$y = \left(\frac{x}{2}\right)^2$

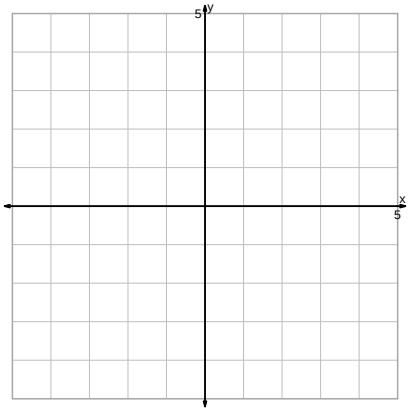




$y = \sqrt[3]{2x}$

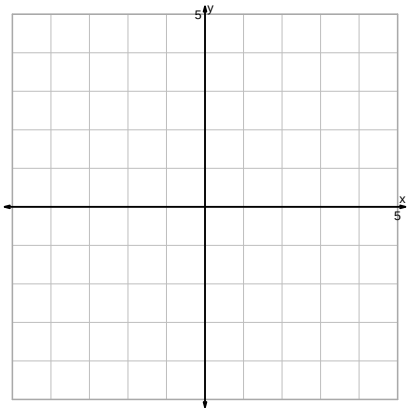
$y = x^3 + 2$

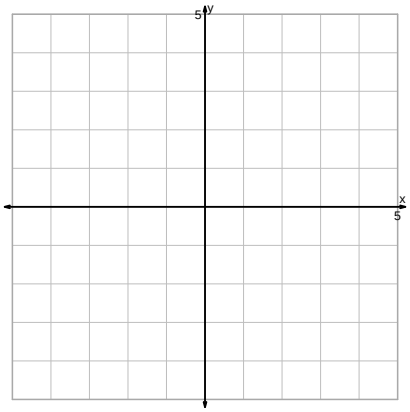




$y = \sqrt{x} - 2$

$y = -\sqrt{x}$

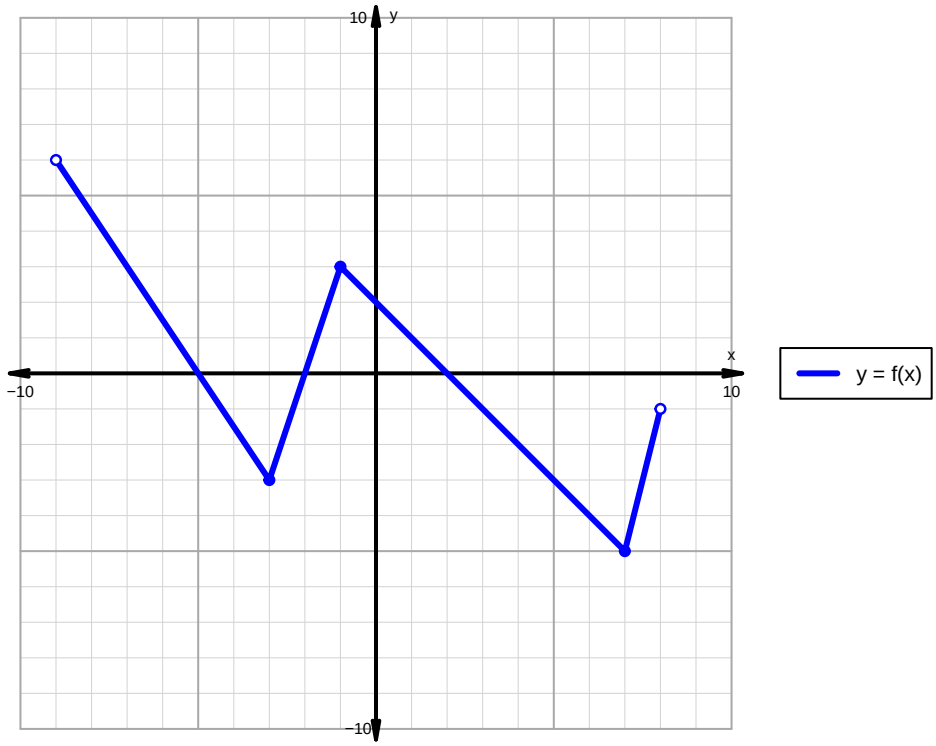




$y = \frac{\sqrt[3]{x}}{2}$

Question 3

A function is graphed below.



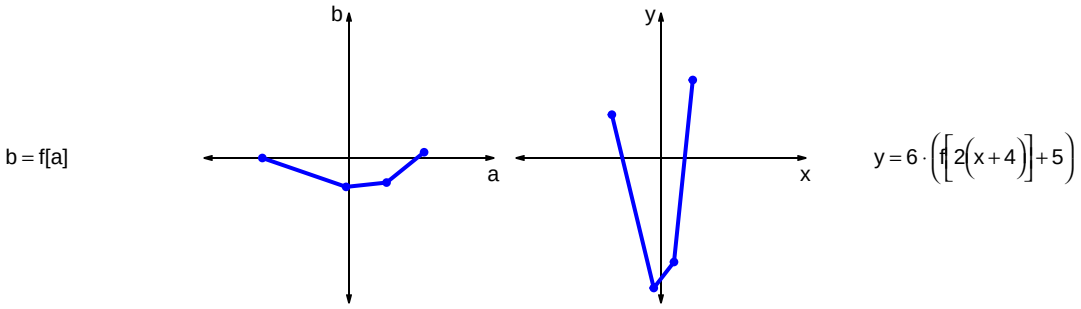
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = 6 \cdot (f[2\,(x+4)] + 5)$ are represented below in a table and on graphs.

a	b	x	y
-60	0	-34	30
-2	-20	-5	-90
26	-17	9	-72
52	4	22	54



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = 6 \cdot (f[2\,(x+4)] + 5)$?

Question 5

A parent square-root function is transformed in the following ways:

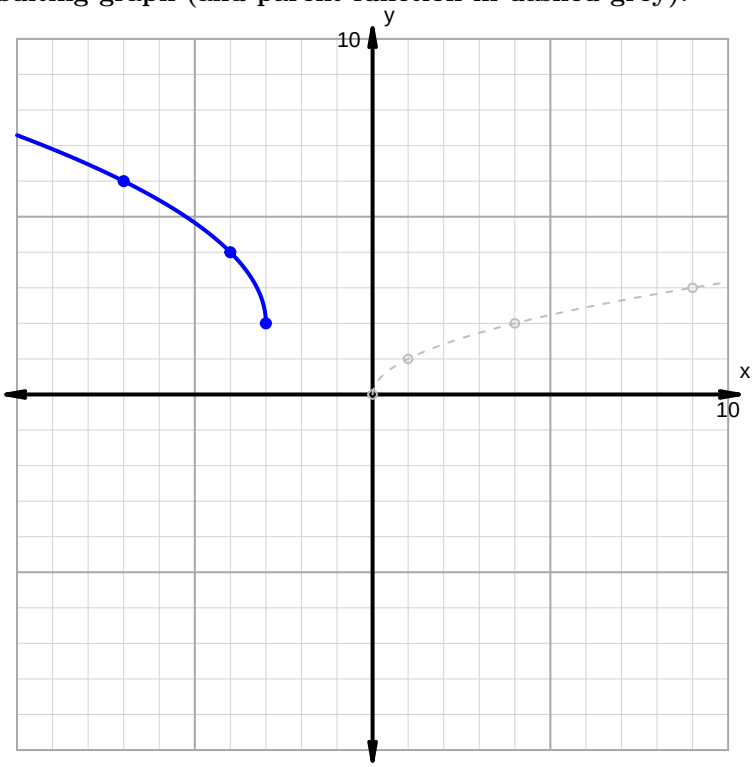
Horizontal transformations

1. Translate right by distance 3.
2. Horizontal reflection over y axis.

Vertical transformations

1. Translate up by distance 1.
2. Vertical stretch by factor 2.

Resulting graph (and parent function in dashed grey):

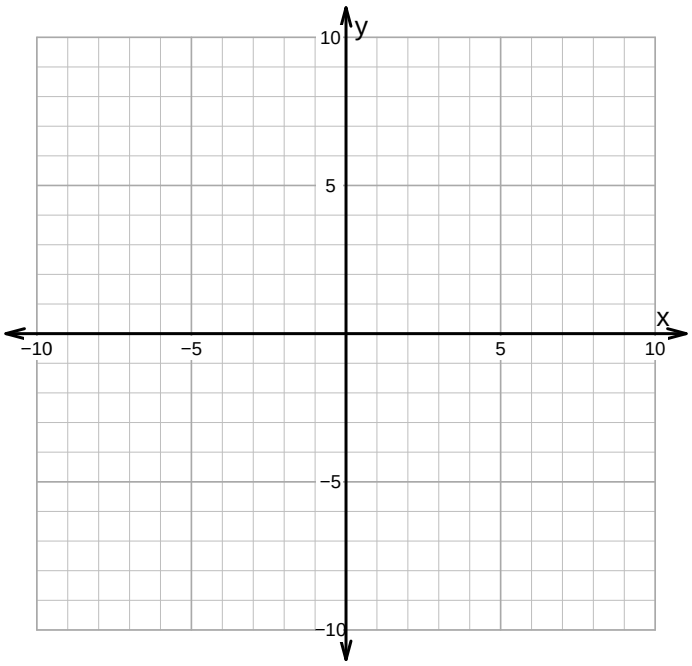


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{-1}{3} \cdot |x - 3| + 2$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	